

REMARKS/ARGUMENTS

Claims 1-48 are pending in the present application. Claims 1-8 and 25-48 have been withdrawn.

This Amendment is in response to the Office Action mailed August 21, 2008. In the Office Action, the Examiner rejected claims 9-24 under 35 U.S.C. §103(a). Reconsideration in light of the remarks made herein is respectfully requested.

Rejection Under 35 U.S.C. § 103

In the Office Action, the Examiner rejected claims 9-24 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 7,074,647 issued to Owens et al. ("Owens") in view of U.S. Publication No. 2004/0145040 issued to Fukuda et al. ("Fukuda"). Applicant respectfully traverses the rejection and submits that the Examiner has not met the burden of establishing a *prima facie* case of obviousness.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *MPEP* §2143, p. 2100-126 to 2100-130 (8th Ed., Rev. 5, August 2006). Applicant respectfully submits that there is no suggestion or motivation to combine their teachings, and thus no *prima facie* case of obviousness has been established.

Furthermore, the Supreme Court in *Graham v. John Deere*, 383 U.S. 1, 148 USPQ 459 (1966), stated: "Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined." *MPEP* 2141. In *KSR International Co. vs. Teleflex, Inc.*, 127 S.Ct. 1727 (2007) (Kennedy, J.), the Court explained that "[o]ften, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was

an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” The Court further required that an explicit analysis for this reason must be made. “[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR 127 S.Ct.* at 1741, quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). In the instant case, Applicant respectfully submits that there are significant differences between the cited references and the claimed invention and there is no apparent reason to combine the known elements in the manner as claimed, and thus no *prima facie* case of obviousness has been established.

Owens discloses a semiconductor component comprising leadframe, semiconductor chip and integrated passive component in vertical relationship to each other. Semiconductor component 400 comprises a leadframe 410 having a surface 411, an integrated passive component 420 located above surface 411, a semiconductor chip 430 electrically coupled to integrated passive component 420 and located above surface 411 (Owens, col. 5, lines 61-65). Semiconductor chip 430 is located between integrated passive component 420 and leadframe 410 (Owens, col. 6, lines 1-2).

Fukuda discloses a semiconductor device and manufacturing method for the same. A second semiconductor chip 2, which is larger than first semiconductor chip 1, is connected to first semiconductor chip 1 back-to-back by means of an adhesive 14 having a thickness (Fukuda, paragraph [0037], lines 1-5). Passive parts 17 are electrically connected to the mounting surface of first semiconductor chip 1 on carrier board 20 (Fukuda, paragraph [0061], lines 1-3). A spacer 16 is adhered to the rear surfaces of passive parts 17 so that the height of the spacer becomes approximately the same as the height of the rear surface of first semiconductor chip 1 (Fukuda, paragraph [0061], lines 9-12).

Owens and Fukuda, taken alone or in any combination, do not disclose or render obvious, at least one of: (1a) a spacer between upper and lower dies in stacked dies on a package substrate to provide clearance for bond wires attaching to bond pads on the lower die; (1b) a thin-film passive element integrated on the spacer; (1c) an adhesive layer assembly to attach the spacer and the thin-film passive element to the upper and lower dies; and (1d) conductors attached to

the passive element and the adhesive layer assembly to connect the passive element to at least one of the upper and lower dies.

First, Owens merely discloses a semiconductor chip 430 is located between integrated passive component 420 and leadframe 410 (Owens, col. 6, lines 1-2), not upper and lower dies in stacked dies. Since there is only a single semiconductor chip, there cannot be stacked dies involving upper and lower dies.

Second, Owens merely discloses a leadframe 410 (Owens, col. 6, lines 12-13), not a spacer. A leadframe 410 may be a quad flat non-leaded leadframe, a P-DIP, an SOIC, a QFP. It cannot be a spacer between upper and lower dies.

Third, Owens merely discloses passive device 421 can be a resistor, a capacitor, an inductor, a passive circuit, a band pass filter (Owens, col. 6, lines 15-17), not a thin-film passive element integrated on the spacer. These passive devices are discrete passive devices (Owens, col. 6, lines 36-38). They are not thin-film passive devices. In addition, they are not integrated on the spacer.

Fourth, Fukuda merely discloses a second semiconductor chip 2 connected to first semiconductor chip 1 back-to-back by means of an adhesive 14 (Fukuda, paragraph [0037], lines 1-5), not stacked dies having a spacer assembly in between. An adhesive is not a spacer assembly. In addition, the adhesive cannot and does not provide clearance for bond wires attaching to bond pads on the lower die.

Fifth, Fukuda merely discloses passive parts 17 are arranged so that the rear surface of second semiconductor chip 2 and the rear surfaces of passive parts 17 facing the rear surface of second semiconductor chip 2 are adhered to each other (Fukuda, paragraph [0061], lines 5-8), not a thin-film passive element integrated on the spacer. As clearly shown in Fig. 9B, the passive parts 17 are adhered to the semiconductor 1 on a side, not between the two chips. Furthermore, the passive parts 17 are discrete passive devices, not thin-film passive element.

Sixth, Fukuda merely discloses a spacer 16 between the semiconductor chip 2 and the passive parts 17 (Fukuda, Fig. 9B; paragraph [0061], lines 9-12), not a spacer between upper and lower dies in stacked dies on a package substrate to provide clearance for bond wires attaching to bond pads on the lower die. Fukuda specifically discloses that the height of the spacer becomes approximately the same as the height of the rear surface of first semiconductor chip 1 (Fukuda,

paragraph [0061], lines 9-12). Accordingly, the spacer is not between the upper and lower dies in stacked dies.

Moreover, modifying Owens to incorporate the teachings of Fukuda would render the Owens technique being modified unsatisfactory for its intended purpose, or change its principle of operation. If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). If the proposed modification or combination of the prior art would change the principle of operation of the prior invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). Here, modifying Owens to incorporate the Fukuda would render the Owens technique unworkable because there are no stacked dies in Owens and therefore there is no spacer. Accordingly, there is no suggestion or motivation to make the proposed modification.

The Examiner failed to establish a prima facie case of obviousness and failed to show there is teaching, suggestion, or motivation to combine the references. When applying 35 U.S.C. 103, the following tenets of patent law must be adhered to: (A) The claimed invention must be considered as a whole; (B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination; (C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and (D) Reasonable expectation of success is the standard with which obviousness is determined. *Hodosh v. Block Drug Co., Inc.*, 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986). “When determining the patentability of a claimed invention which combined two known elements, ‘the question is whether there is something in the prior art as a whole suggest the desirability, and thus the obviousness, of making the combination.’” *In re Beattie*, 974 F.2d 1309, 1312 (Fed. Cir. 1992), 24 USPQ2d 1040; *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1462, 221 USPQ (BNA) 481, 488 (Fed. Cir. 1984). To defeat patentability based on obviousness, the suggestion to make the new product having the claimed characteristics must come from the prior art, not from the hindsight knowledge of the invention. *Interconnect Planning Corp. v. Feil*, 744 F.2d 1132, 1143, 227 USPQ (BNA) 543, 551 (Fed. Cir. 1985). To prevent the use of hindsight based on the invention to defeat

patentability of the invention, this court requires the Examiner to show a motivation to combine the references that create the case of obviousness. In other words, the Examiner must show reasons that a skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the prior elements from the cited prior references for combination in the manner claimed. *In re Rouffet*, 149 F.3d 1350 (Fed. Cir. 1996), 47 USPQ 2d (BNA) 1453. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or implicitly suggest the claimed invention or the Examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973. (Bd.Pat.App.&Inter. 1985). The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Furthermore, although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." *In re Mills*, 916 F.2d at 682, 16 USPQ2d at 1432; *In re Fritch*, 972 F.2d 1260 (Fed. Cir. 1992), 23 USPQ2d 1780.

Moreover, the Examiner failed to establish the factual inquires in the three-pronged test as required by the *Graham* factual inquires. There are significant differences between the cited references and the claimed invention as discussed above. Furthermore, the Examiner has not made an explicit analysis on the apparent reason to combine the known elements in the fashion in the claimed invention. Accordingly, there is no apparent reason to combine the teachings of Owens and Fukuda in any combination.

In the present invention, the cited references do not expressly or implicitly disclose any of the above elements. In addition, the Examiner failed to present a convincing line of reasoning as to why a combination of Owens and Fukuda is an obvious application of integrating passive components on spacer in stacked dies, or an explicit analysis on the apparent reason to combine Owens and Fukuda in the manner as claimed.

Therefore, Applicant believes that independent claims 9 and 17 and their respective dependent claims are distinguishable over the cited prior art references. Accordingly, Applicant respectfully requests the rejection under 35 U.S.C. §103(a) be withdrawn.

Conclusion

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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Dated: December 15, 2008

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